

US DEPARTMENT OF AGRICULTURE
FOREST SERVICE



Northeastern Area
State & Private Forestry
DIVISION OF FOREST PEST CONTROL



US FOREST SERVICE
NA - S&PF - FIELD OFFICE
FEDERAL BLDG. - US COURT HOUSE
316 ROBERT ST.
ST. PAUL, MINN. 55101

Report No. S-69-7

July, 1969

JACK-PINE BUDWORM EARLY INSTAR LARVAL SURVEY ON THE CHEQUAMEGON N. F.
I. Millers and T. Eiber

INTRODUCTION

The jack-pine budworm is a perennial pest of jack and red pine in the Lake States. The damage from defoliation results in growth reduction, top-kill, or tree mortality, depending on the severity of defoliation.

Predictions of budworm outbreaks and defoliation have been inaccurate. To improve the predictions, annual evaluation surveys were inaugurated to determine the following:

1. To determine the degree of budworm population fluctuations during pre-outbreak periods.
2. To determine the effect of previous pine defoliation on the budworm populations.
3. To determine how much defoliation occurs from a given larval population.

This report covers the results of early larval collections made in June, 1969, and compares the populations with egg survey results from the previous fall.

METHODS

The detailed sampling plans are described in the original evaluation plan (Millers, 1968). In general, it follows the techniques described by Foltz et al., 1968. Briefly, 4 branches are sampled from each of 10 trees (2 from mid-crown and 2 from lower crown) in a cluster at preselected locations. During egg survey in fall, 36 inch long branches were examined. For larval surveys, 18 inch long branches are sampled. Summer Students, FPC, and a crew at the Toumey Nursery, Watersmeet, Michigan, were responsible for branch examination. The results are expressed as number of budworms (or eggs) per 100 shoots (current growth tips) per plot. More than 40 budworms per 100 tips can be expected to cause heavy defoliation.



RESULTS

WASHBURN RANGER DISTRICT

R. 8 W.

R. 7 W.

R. 6 W.

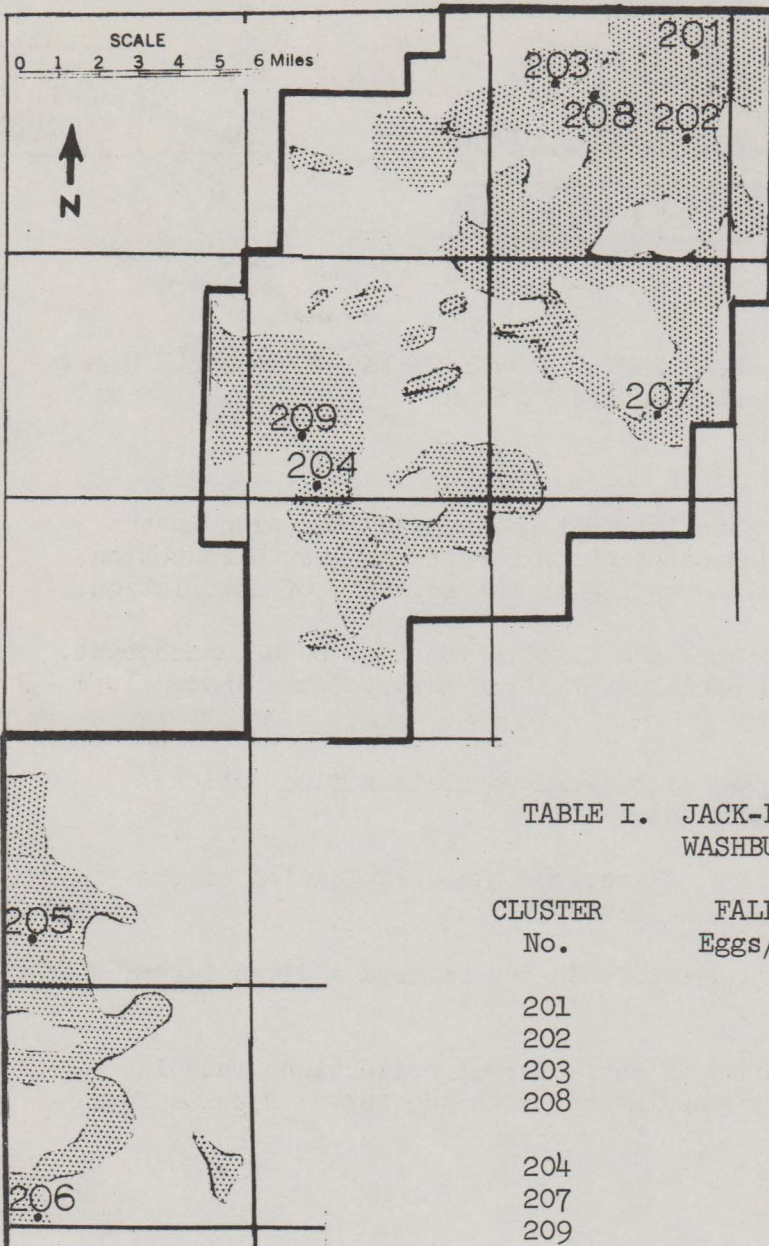


Table 1 shows the budworm populations for each plot during fall egg survey and the current larval populations. The map below shows the plot locations. The dotted areas indicate predominantly jack pine type.

Light defoliation can be expected in the northern jack pine area and the southern block. The central jack pine area can be expected to have some browning from budworm defoliation, but the damage should not be severe. Tree mortality is not expected.

TABLE I. JACK-PINE BUDWORM POPULATIONS ON THE WASHBURN R. D., CHEQUAMEGON N. F.

CLUSTER No.	FALL, 1968 Eggs/100 tips	SPRING, 1969 Larvae/100 tips
201	20	2.43
202	27	4.69
203	88	9.62
208	36	5.41
204	98	21.84
207	125	21.47
209	5	1.58
205	9	1.51
206	28	3.50

REFERENCES

- FOLTZ, J. L., F. B. Knight, D. C. Allen, A. J. Mattson, Jr. 1968. A technique for sampling populations of the jack-pine budworm. Forest Service 14(3): 277-281
- MILLERS, I. 1968. Evaluation plan for jack-pine budworm larval populations on National Forests in the Lake States. USDA, Forest Service, NA S&PF, St. Paul Field Office. 5230. 6 pp.